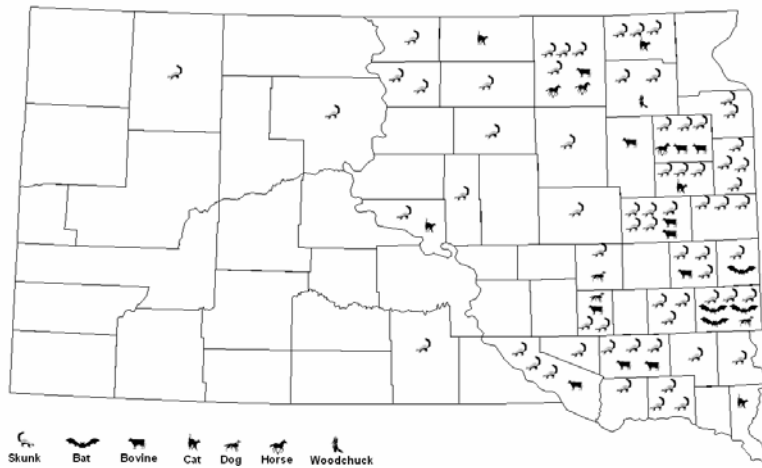


Rabies Surveillance, South Dakota, 2004

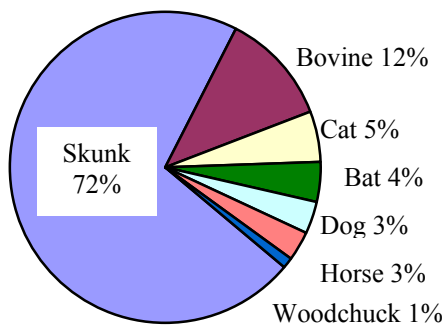
Rabies is enzootic in South Dakota. In 2004, 848 animals were submitted for rabies testing in South Dakota with 94 animals testing positive. This was a 29% decrease from the previous year, 2003, when 132 animals tested positive. The 94 rabies positive animals included 72 wild animals (67 skunks, 4 bats, and 1 woodchuck) and 22 domestic animals (11 cattle, 5 cats, 3 dogs, and 3 horses). There were no human rabies cases in South Dakota in 2004. Our last human case was in 1970.

Animal Rabies in South Dakota by County, 2004



In 2004 rabid animals were detected in 36 South Dakota counties. Animals were submitted for testing from all counties, except Bennett, Buffalo, Corson, Sully and Ziebach. From 1990 through 2004, there were 15,161 animals tested for rabies in South Dakota, 1762 of which tested positive (12%). During these years animals were submitted for testing from all counties, and rabid animals were

Animal rabies cases, South Dakota, 2004



Animal rabies cases by County, 1990 – 2004					
County	2004		1990 – 2004		
	Pos	Neg	Pos	Neg	% Pos
Aurora	0	2	27	92	23%
Beadle	1	10	55	239	19%
Bennett	0	0	0	24	0%
Bon Homme	1	0	12	91	12%
Brookings	3	43	72	672	10%
Brown	7	42	75	448	14%
Brule	0	4	22	135	14%
Buffalo	0	0	6	24	20%
Butte	0	17	38	272	12%
Campbell	1	0	21	64	25%
Charles Mix	4	10	36	186	16%
Clark	1	7	37	101	27%
Clay	0	7	6	130	4%
Codington	6	21	58	326	15%
Corson	0	0	7	23	23%
Custer	0	5	4	48	8%
Davison	4	26	45	442	9%
Day	3	7	51	152	25%
Deuel	4	17	53	262	17%
Dewey	1	2	25	78	24%
Douglas	1	2	24	100	19%
Edmunds	1	2	19	98	16%
Fall River	0	7	4	196	2%
Faulk	1	4	23	60	28%
Grant	2	6	33	215	13%
Gregory	0	6	13	116	10%
Haakon	0	2	9	83	10%
Hamlin	4	10	58	164	26%
Hand	0	4	30	102	23%
Hanson	0	6	14	65	18%
Harding	0	1	11	34	24%
Hughes	2	30	35	313	10%
Hutchinson	5	22	65	283	19%
Hyde	1	4	19	104	15%
Jackson	0	4	2	86	2%
Jerauld	0	4	18	65	22%
Jones	0	2	3	26	10%
Kingsbury	7	11	66	250	21%
Lake	4	22	39	246	14%
Lawrence	0	6	20	180	10%
Lincoln	1	14	13	245	5%
Lyman	0	6	2	61	3%
Marshall	4	6	31	142	18%
McCook	3	13	41	190	18%
McPherson	1	9	35	137	20%
Meade	0	11	29	265	10%
Mellette	0	1	1	18	5%
Miner	0	9	28	103	21%
Minnehaha	7	135	90	2432	4%
Moody	2	6	39	165	19%
Pennington	0	70	46	1108	4%
Perkins	1	1	11	44	20%
Potter	0	1	11	40	22%
Roberts	0	13	47	273	15%
Sanborn	2	3	24	85	22%
Shannon	0	5	0	57	0%
Spink	1	11	26	155	14%
Stanley	0	2	3	25	11%
Sully	0	0	7	18	28%
Todd	0	10	0	90	0%
Tripp	1	2	16	159	9%
Turner	1	21	43	318	12%
Union	1	5	7	141	5%
Walworth	2	15	40	328	11%
Yankton	3	10	17	201	8%
Ziebach	0	0	0	4	0%
South Dakota	94	754	1762	13399	12%

detected in all counties, except Bennett, Shannon, Todd, and Ziebach.

Minnehaha County submitted the most animals for testing (2,522) and Ziebach County submitted the fewest (4).

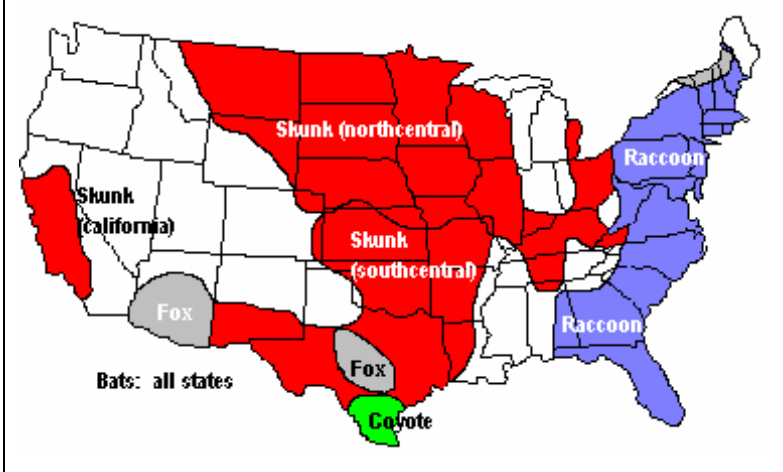
Since 1990, 26% of rabid animal cases in South Dakota have been domestic animals. Rabid livestock included 214 cattle, 50 horses, 6 sheep, 3 pigs, and 2 goats. There were also 101 rabid dogs and 87 rabid cats, many of which were unvaccinated strays. Of the 72 rabid dogs investigated between 1993 and 2004, none were fully immunized, 85% (61) had never been immunized, 7% (5) were inadequately immunized, and 8% (6) were of unknown vaccination status.

The common skunk (*Mephitis mephitis*) is the enzootic rabies reservoir in South Dakota. Since 1990, 68% of the skunks tested have been rabid. Bat rabies is also enzootic in South Dakota with 71 positive bats since 1990, 3% of the bats tested.

Rabies is not considered enzootic in other wild animals in South Dakota. Since 1990, however, rabies has been detected in 8 fox, 3 badgers, 3 raccoons, 2 bison, 1 opossum, 1 shrew and 1 woodchuck. These other wild animal cases are probably spillover rabies following exposure to rabid skunks.

Animals tested and confirmed rabies cases, SD, 1990-2004					
Animal	2004		1990 - 2004		
	Pos	Total tested	Total tested	Pos	% Pos
Skunk	67	92	1768	1209	68%
Cattle	11	103	2048	214	10%
Dog	3	168	2836	101	4%
Cat	5	240	4090	87	2%
Bat	4	123	2058	71	3%
Horse	3	29	339	50	15%
Fox	0	4	87	8	9%
Sheep	0	7	164	6	4%
Raccoon	0	29	811	3	0%
Pig	0	1	29	3	10%
Badger	0	0	20	3	15%
Goat	0	4	37	2	5%
Bison	0	2	11	2	18%
Opossum	0	6	65	1	2%
Woodchuck	1	4	16	1	6%
Shrew or mole	0	0	7	1	14%
Rodents*	0	11	445	0	0%
Deer, elk, donkey, llama	0	2	84	0	0%
Weasel, ferret, mink	0	1	69	0	0%
Coyote or wolf	0	1	53	0	0%
Squirrel, chipmunk	0	12	49	0	0%
Muskrat	0	1	38	0	0%
Rabbits and hares	0	5	15	0	0%
Bobcat or bear	0	0	5	0	0%
Mountain lion	0	2	2	0	0%
Other animals	0	1	15	0	0%
TOTAL	94	848	15161	1762	12%
*Rodents: rat, mouse, prairie dog, gopher, beaver, porcupine, vole					

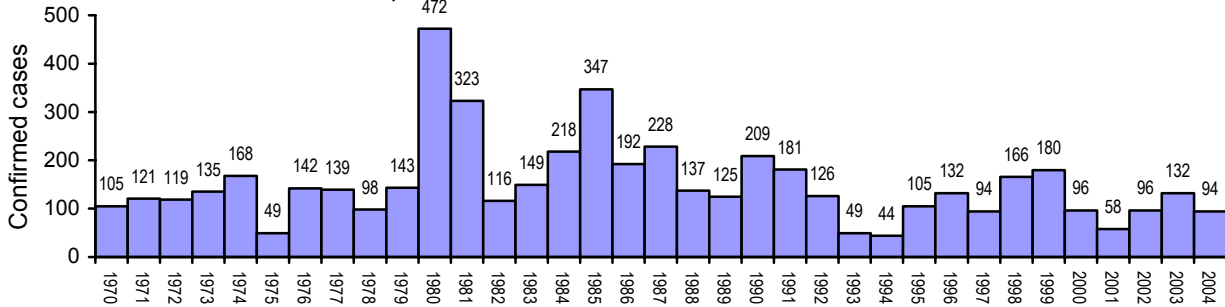
Wild animal reservoirs of rabies in the United States.



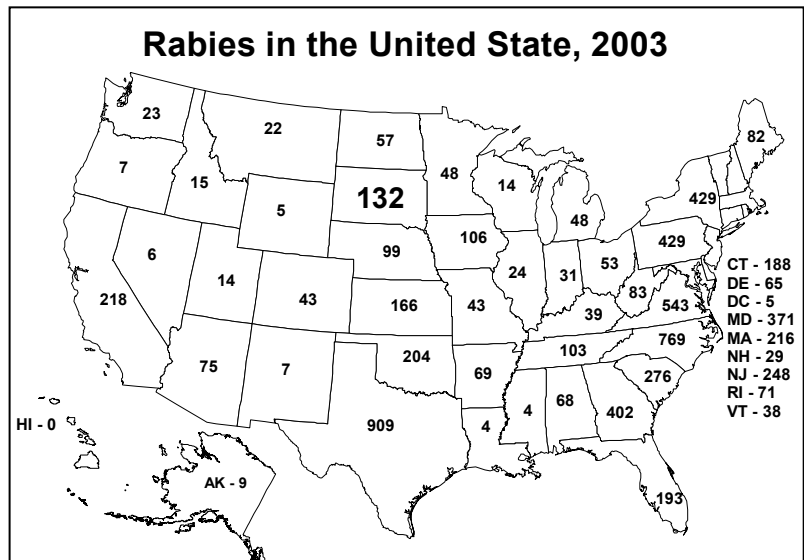
Animal rabies events occur throughout the year in South Dakota, but most rabies events occur during the spring and summer months.

Nationally there were 7 human rabies cases in 2004, 6 deaths and 1 survival. One of the human rabies (*bat virus*) victim's organs were transplanted into 4 other people who then developed rabies and died. The other human death was a Florida resident (*dog rabies*). A teenager from Wisconsin survived bat rabies after receiving experimental treatment.

Animal rabies in South Dakota, 1970 - 2004



The latest national animal rabies surveillance information is reported for 2003 data (Krebs, et. al., 2004). Nationally, there were 7,170 cases of animal rabies reported in 2003. According to Krebs 91% of the rabies cases are among wild animals and 9% are from domestic animals. Nationally domestic animals included 321 cats, 117 dogs, 98 cattle, 63 horses/mules, 11 goats, 1 sheep and 2 swine. In 2003 South Dakota had 14 rabid cattle, second most in the country. Nationally, wild animals testing positive for rabies included 2,635 raccoons, 2,112 skunks, 1,212 bats, 456 fox, 49 mongooses, 34 bobcats, 31 groundhogs, 7 coyotes, 4 deer, 3 otters, 3 opossums, 2 beavers, 2 rabbits, 1 badger, 1 bear, 1 guinea pig, 1 rat, 1 ringtail (*Bassariscus*) and 1 gray squirrel. Nationally rabies decreased 10% between 2002 and 2003. In 2003 South Dakota had 11 rabid dogs, third most in the country following Texas, 19, and Oklahoma, 16.



Two laboratories do rabies testing in South Dakota: (1) Animal Disease Research Diagnostic Laboratory in Brookings, and (2) State Public Health Laboratory in Pierre. Both laboratories use the direct fluorescent antibody (DFA) technique. The case definition of a confirmed animal rabies case is a positive DFA test, performed preferably on central nervous system tissue, or the isolation of rabies virus in cell culture or in a laboratory animal. Human serum rabies antibody titers on previous vaccinated people may be ordered through the Public Health Laboratory.

Rabies consultations are available from the Office of Disease Prevention, South Dakota Department of Health, 7 days a week. Consultations are based on current Centers for Disease Control and Prevention (CDC) recommendations*. We strive to recommend appropriate rabies prevention measures and to minimize unnecessary and inappropriate post-exposure testing and prophylactic treatment.

RABIES ADDRESSES, TELEPHONE NUMBERS and WEB SITES

Department of Health, Office of Disease Prevention

(rabies consultations)
615 East Fourth Street
Pierre, SD 57501-1700
Phone: 605-773-3737; 1-800-592-1861;
after hours cell phone 605-280-4810
Web: www.state.sd.us/doh/Pubs/rabies.htm

Department of Health, Public Health Laboratory

(rabies testing and submitting specimens)
615 East Fourth Street
Pierre, SD 57501-1700
Phone: 1-800-592-1861 or 605-773-3368
Web: www.state.sd.us/doh/Lab/rabies.htm

Animal Disease Research and Diagnostic Laboratory (rabies testing)

Box 2175, North Campus Drive
South Dakota State University
Brookings, SD 57007-1396
Phone: 605-688-5171 Web: www.vetsci.sdstate.edu

South Dakota Animal Industry Board (livestock and other animal veterinary and regulatory issues)
441 S. Fort Street, Pierre, SD 57501-4503
Phone: 605-773-3321 Web: www.state.sd.us/aib

South Dakota Bat Working Group

http://nat_hist.sdstate.edu/SDBWG/SDBWG.html

CDC Rabies homepage:

www.cdc.gov/ncidod/dvrd/rabies/default.htm

Rabies is a viral infection that affects the nervous system of mammals. Rabies is usually transmitted by a bite from an infected animal, scratch or exposure to saliva. After being bitten or scratched, symptoms usually start 3 - 8 weeks later. Symptoms may include behavior changes, headache, fever, malaise, sensory changes, and paralysis. Rabies is almost always fatal. Prompt vaccination following a bite prevents rabies in humans. Up-to-date vaccinations of dogs, cats, ferrets and livestock, prior to exposure, protects against the disease. If a human is exposed to rabies they must have anti-rabies shots. See your physician.

ANTI-RABIES SHOTS (POST-EXPOSURE PROPHYLAXIS)

- Clean wound with soap, water and a virucidal agent such as povidone-iodine solution.
- Immunize for tetanus, if needed.
- Control the bacterial infection.
- Administer rabies immune globulin (RIG) 20 IU/kg body weight, infiltrated around wound site.
- Administer 5 doses of rabies vaccine, 1.0 mL each (IM deltoid) over 28-days (days 0, 3, 7, 14, 28).
- If the person was previously vaccinated for rabies, the RIG should not be administered and only 2 doses of vaccine are recommended (days 0 and 3).
- Anti-rabies post-exposure prophylaxis costs around \$2000, depending on weight of the patient.
- Rabies shots are given in the arm, like the flu shot.

References

*Centers for Disease Control and Prevention. Human rabies prevention – United States, 1999: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1999; 48 (No. RR-1).
www.cdc.gov/mmwr/preview/mmwrhtml/00056176.htm

Centers for Disease Control and Prevention. Compendium of animal rabies prevention and control, 2004: National Association of State Public Health Veterinarians, Inc. MMWR 2004; 53 (No. RR-9).
www.cdc.gov/mmwr/preview/mmwrhtml/rr5309a1.htm

Krebs, JW, EJ Mandel, DL Swerdlow and CE Rupprecht. 2004. Rabies surveillance in the United States during 2003. Journal of the American Veterinary Medical Association 225: 1837-1849.

